

REMARKS/ARGUMENTS

Claims 1-27 are pending in the application. Claims 1-6, 10, 14-17, 19, and 23-24 have been amended. Reconsideration is respectfully requested. Applicant submits that the pending claims are patentable over the art of record and allowance is respectfully requested of the pending claims.

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freimuth et al. (U.S. Publication No. 2005/0050187 A1) in view of Jha et al. (U.S. Publication No. 2004/0249881 A1). Applicant respectfully traverses.

Claim 1 describes maintaining a link between a first network entity and a second network entity, wherein the first network entity includes a network adapter and a driver. Claim 1 further describes, in response to the driver shutting down and reloading, determining whether the driver was reloaded before a link-shutdown timer expired, wherein the link-shutdown timer is associated with the link and is started in response to the driver starting a shutdown sequence, continuing processing without dropping the link in response to the driver being reloaded before the link-shutdown timer expired, and dropping the link in response to the driver not being reloaded before the link-shutdown timer expired (e.g., Specification, page 8, paragraph 29 – page 9, paragraph 32; Figures 3, 4, and 5).

For example, Applicant's Specification, page 8, paragraph 28, and Figure 2 describe: Having a link come up (i.e., be available) and go down (i.e., be unavailable) may cause side effects to network entities (e.g., switches) that try consistently to determine whether the network topology changed. The link switching from being available to being unavailable or switching from being unavailable to being available may also be referred to as a "link toggle." Embodiments of the invention prevent this link toggle when a driver is to be unloaded and reloaded (e.g., due to reconfiguring of the network adapter 112). By preventing the link from becoming unavailable, embodiments of the invention avoid exposing any difference to external network entities that are attempting to detect any change in the network 200. For example, if a driver at computer 205 is to be unloaded and reloaded, embodiments of the invention do not drop link E 218 between

computer 205 and switch 202 for a certain period of time, to allow the driver to be reloaded, without connectivity problems.

That is, Applicant's claimed invention is directed to keeping a link up while a driver is being unloaded and reloaded.

On the other hand, the Freimuth patent application describes a mechanism for bottleneck avoidance that allows the adapter to be used such that host/adapter system throughput is optimized (Abstract). The bottleneck avoidance mechanism of the Freimuth patent application determines whether the adapter becomes a bottleneck, and, if certain conditions exist, the new connections are refused and, if other conditions exist, the adapter may migrate workload to the host processor for processing (Abstract). The Freimuth patent application does not teach or suggest in response to the driver shutting down and reloading, determining whether the driver was reloaded before a link-shutdown timer expired, wherein the link-shutdown timer is associated with the link and is started in response to the driver starting a shutdown sequence; continuing processing without dropping the link in response to the driver being reloaded before the link-shutdown timer expired, and dropping the link in response to the driver not being reloaded before the link-shutdown timer expired.

The Jha patent application does not cure the defects of the Freimuth patent application. The Jha patent application describes transmitting commands between a TCP stack and an offload unit (Abstract). The Jha patent does not address the problem solved by the Applicant's claimed invention. In particular, the Jha patent does not teach or suggest, in response to the driver shutting down and reloading, determining whether the driver was reloaded before a link-shutdown timer expired, wherein the link-shutdown timer is associated with the link and is started in response to the driver starting a shutdown sequence, continuing processing without dropping the link in response to the driver being reloaded before the link-shutdown timer expired, and dropping the link in response to the driver not being reloaded before the link-shutdown timer expired.

In paragraphs 106 and 108, the Jha patent application describes a buffer request timer, and, if the buffer request timer has expired, then the buffer upload unit sets the sync request flag stored in CBT and the legacy flag stored in Notification Unit. The buffer request timer does not teach or suggest the claimed link-shutdown timer, wherein it is determined whether the driver was reloaded before the link-shutdown timer expired, wherein the link-shutdown timer is

associated with the link and is started in response to the driver starting a shutdown sequence, and wherein processing is continued without dropping the link in response to the driver being reloaded before the link-shutdown timer expired and the link is dropped in response to the driver not being reloaded before the link-shutdown timer expired.

Thus, amended claim 1 is not taught or suggested by the Freimuth or the Jha patent applications, either alone or in combination.

Amended claims 10 and 19 are not taught or suggested by the Freimuth or the Jha patent applications, either alone or in combination, for at least the same reasons as were discussed with respect to claim 1.

Amended claim 5 describes a driver starting a shutdown sequence, in response to determining that the link does not need to shut down, starting a link-shutdown timer for dropping the link, in response to the driver starting a load sequence and determining that the link-shutdown timer is enabled and has not expired, determining whether the link is available, wherein the link is determined to be available when the driver is reloaded before the link-shutdown timer has expired, and continuing processing without renegotiating the link in response to the link being available (e.g., Specification, page 8, paragraph 29 – page 9, paragraph 32; Figures 3, 4, and 5).

The Jha patent application in paragraph 61 describes TCP Stack configuring HOT Unit to notify TCP Stack for each received ACK. If, TCP Stack determines ssthresh is less than cwnd for the delegated connection, then TCP Stack is in congestion avoidance phase (Jha, paragraph 61). When congestion avoidance is used cwnd opens linearly, until either cwnd equals the maximum transmit window size or packets are dropped (Jha, paragraph 61). However, this does not teach or suggest a driver starting a shutdown sequence, in response to determining that the link does not need to shut down, starting a link-shutdown timer for dropping the link, in response to the driver starting a load sequence and determining that the link-shutdown timer is enabled and has not expired, determining whether the link is available, wherein the link is determined to be available when the driver is reloaded before the link-shutdown timer has expired, and continuing processing without renegotiating the link in response to the link being available.

The Freimuth patent application describes that a determination is made as to whether a migration timer expires, and migration timer refers to a periodic soft timer that is set to check periodically whether there is a need for connection migration on expiry of this timer (Freimuth,

paragraph 45). If the migration timer does not expire, the process determines whether an event occurs (Freimuth, paragraph 45). If the migration timer expires, then a determination is made as to whether CPU utilization is greater than a third predetermined threshold (Freimuth, paragraph 45). The migration timer does not teach or suggest the claimed link-shutdown timer, wherein, in response to determining that the link does not need to shut down, the link-shutdown timer is started; in response to the driver starting a load sequence and determining that the link-shutdown timer is enabled and has not expired, it is determined whether the link is available, wherein the link is determined to be available when the driver is reloaded before the link-shutdown timer has expired; and processing is continued without renegotiating the link in response to the link being available.

The Freimuth patent application in paragraph 59 describes an exit condition that may exist when the network adapter is shut down or taken offline. However, amended claim 5 is directed to the driver shutting down and reloading.

Thus, amended claim 5 is not taught or suggested by the Freimuth or the Jha patent applications, either alone or in combination.

Amended claims 14 and 23 are not taught or suggested by the Freimuth or the Jha patent applications, either alone or in combination, for at least the same reasons as were discussed with respect to claim 5.

Dependent claims 2-4, 6-9, 11-13, 15-18, 20-22, and 24-27 incorporate the language of one of independent claims 1, 5, 10, 14, 19, and 23 and add additional novel elements. Therefore, dependent claims 2-4, 6-9, 11-13, 15-18, 20-22, and 24-27 are not taught or suggested by the Freimuth or Jha patent applications, either alone or in combination, for at least the same reasons as were discussed with respect to claims 1, 5, 10, 14, 19, and 23.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-27 are patentable. Should any additional fees be required beyond those paid, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact her at (310) 553-7973 if the Examiner believes such contact would advance the prosecution of the case.

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